Feb. 10, 1942. W. K. RANKIN 2,272,224

GAS BLAST ELECTRIC CIRCUIT BREAKER

Filed Oct. 29, 1940 2 Sheets-Sheet 1

Fig. 1.

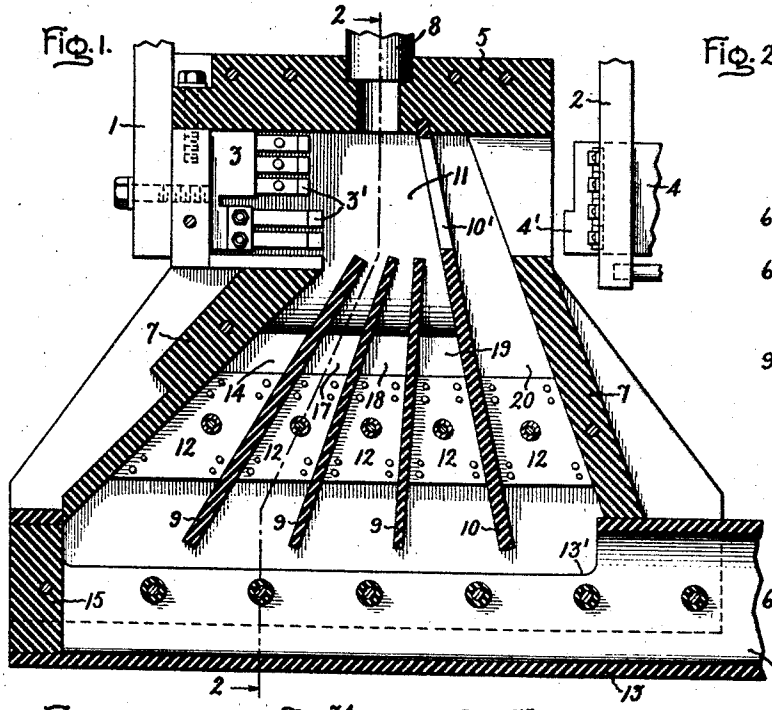


Fig. 2.

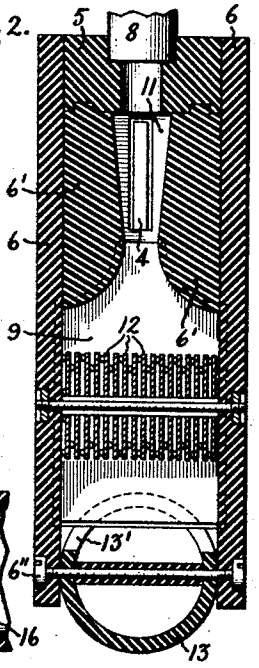
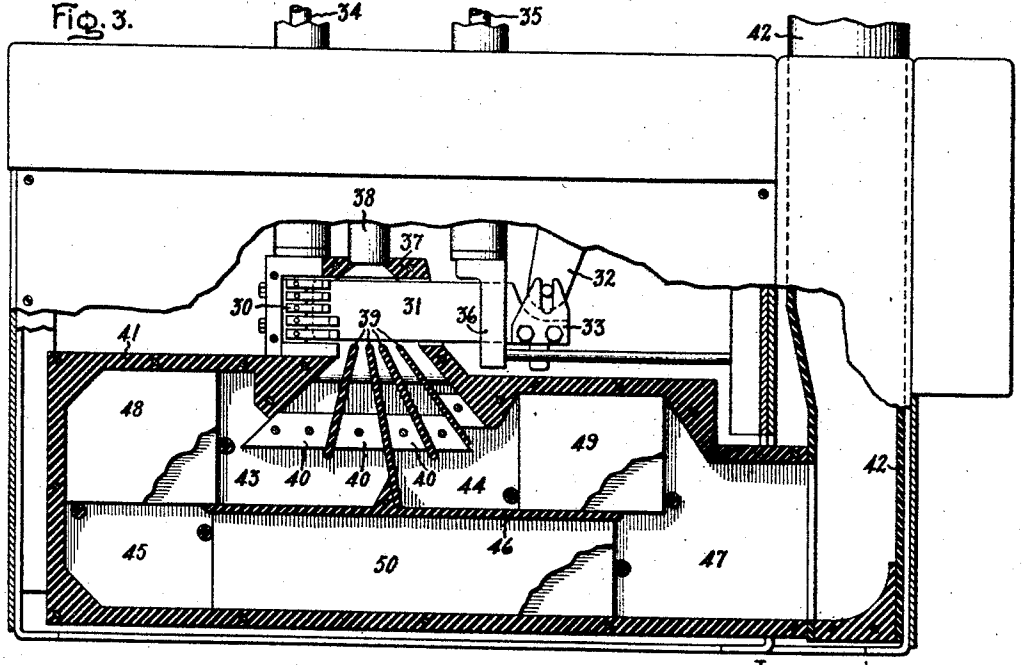


Fig. 3.



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Fig. 4.

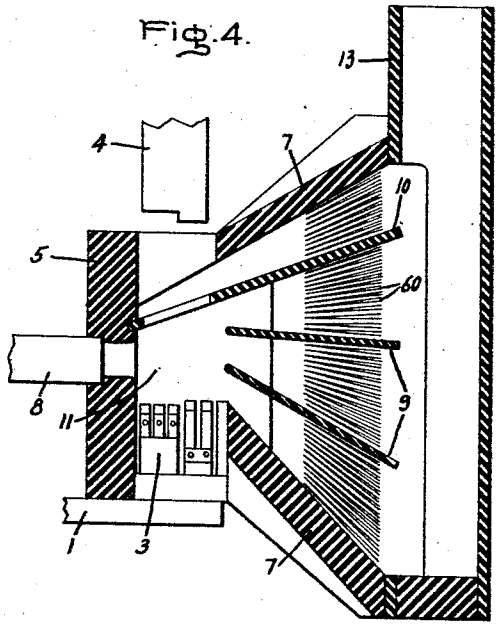


Fig. 6.

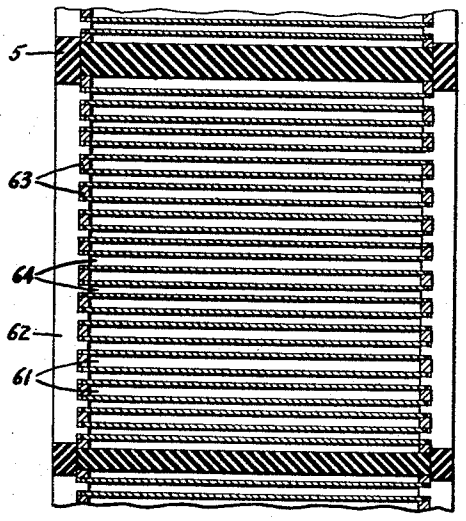


Fig. 5.

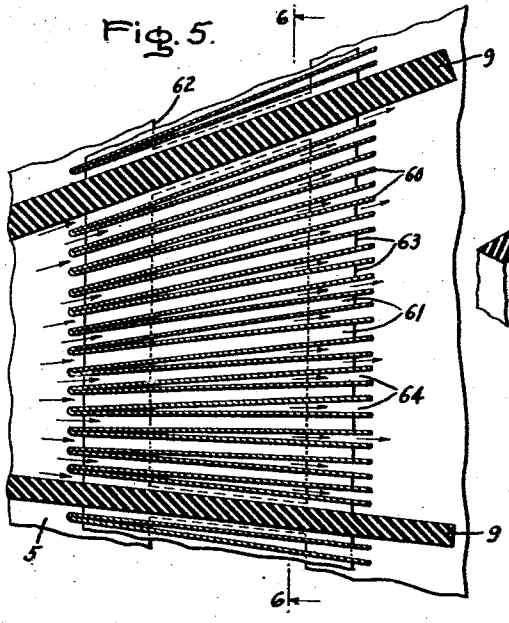
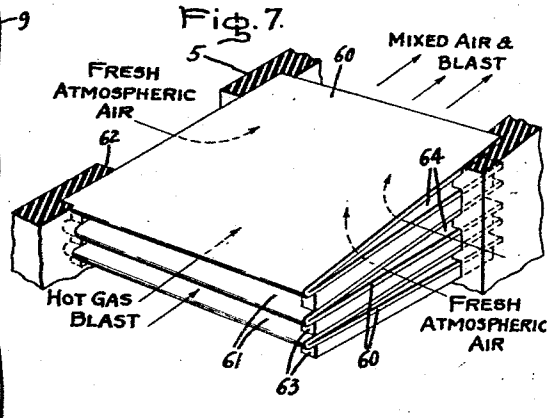


Fig. 7.



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2,272,224

GAS BLAST ELECTRIC CIRCUIT BREAKER

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Application October 29, 1940, Serial No. 363,325

12 Claims. (Cl. 200—148)

My invention relates to electric circuit breakers of the gas blast type, particularly to air blast circuit breakers employing an insulating arc chute in which the arc is extinguished by a blast of air under pressure, and has for its principal object the provision of improved arc chute structure for preventing or minimizing to a practical extent the emission of flame from the arc chute during interruption of large current arcs.

The interruption of heavy current power arcs by a gas blast is often accompanied by a great deal of flame composed of incandescent particles of arc products including metal or other inorganic substances, and burning gases. This flame is obviously very objectionable if not completely confined, particularly in indoor stations since it tends to break down the dielectric strength of the surrounding air and thereby cause failure of the circuit breaker and also possible damage to adjacent apparatus. Furthermore, flame emission from the circuit breaker casing cannot be tolerated where there is a possibility of injury to station attendants.

It has been proposed to employ gas mufflers and various cooling devices at the exhaust part of the arc chamber for cooling the gases and suppressing or minimizing the emission of flame but arrangements heretofore used have in general been either inadequate in the case of large current interruptions or have required excessive space.

In accordance with my invention, flame emission from the circuit breaker is substantially precluded by so directing the gas blast including the hot gases flowing from the region of arcing through a chamber of sufficient size that rapid burning of combustible and incandescent gases is facilitated within said chamber in the presence of an excess of oxygen. In a preferred embodiment of my invention, this is accomplished by directing the air blast through the arc near its initial point of formation to extinguish the arc, and subsequently mixing in a combustion chamber connected to or forming a part of the arc chute the resulting hot blast and a supply of fresh air. Since there is not always sufficient oxygen in the interrupting blast to satisfy the requirements for complete combustion of all combustible gases and products involved, the introduction of fresh air in the arc chute serves to promote combustion of unburned gas, etc., so that it does not ignite upon reaching the atmosphere. For the purpose of this specification, the term "arc chute" is defined to comprehend the complete arc chamber and flame preventing structure.

My invention will be more fully set forth in the following description referring to the accompanying drawings, and the features of novelty which characterize my invention will be pointed out with particularity in the claims annexed to and forming a part of this specification.

Referring to the drawings, Fig. 1 is a sectional view of a gas blast circuit breaker embodying the present invention, Fig. 2 is a sectional view taken along the line 2—2 of Fig. 1, Fig. 3 is an elevational view, partly broken away, of another form of gas blast circuit breaker my invention may assume, Fig. 4 is a similar view of a modified form of my invention and Figs. 5, 6 and 7 are enlarged views of the structure of Fig. 4.

The circuit breaker illustrated by way of example in Fig. 1 is of the air blast type and comprises the conductor terminals 1 and 2 to which the fixed contacts 3 and 4 are connected respectively. The contact 4 which is in sliding contact with terminal 2 comprises a reciprocally movable blade member arranged to engage the finger contacts 3' of the stationary contact. The movable contact is suitably controlled and operated by mechanism not shown and the fixed contact is mounted in an insulating casing 5 defining the arc chamber and constituting a part of the arc chute.

As illustrated by Fig. 2, the casing 5 comprises insulating sidewalls 6 coating with insulating end walls 7 to form a narrow fan-shaped arc chute leading from the coacting contacts. The contacts themselves separate within a narrow slot-like passage defined by the insulating members 6' composed preferably of hard fibre and this passage is in communication with an air supply conduit 8 which is arranged to be connected to a suitable source of air pressure, such as a reservoir or compressor unit. The control means for admitting air under pressure to the arc chute upon separation of the contacts form no part of the present invention and are omitted in the interest of simplicity.

Suitable arc extinguishing means, such as hard fibre barriers 9, extend fan-wise from the arc path between the insulating sidewalls 6 so as to divide the arc chute into a plurality of diverging passages. An additional insulating fibre barrier 10 extends continuously throughout the arc chamber with the exception of a slot 10' of sufficient size to receive the blade contact 4. The extinguishing structure including the barriers 9 and 10 is composed of a suitable organic vapor-

izable material and in addition to hard fibre may consist of materials such as urea or methylmethacrylate. These materials, although vaporizable under the influence of heavy arcs do not become conducting as in the case of ceramic materials.

In the arrangement so far described, admission of an air blast to the entrance of the arc chamber at 11 in accordance with separation of the contacts is effective to drive the arc which forms between the extended stationary finger contacts 3' and the arcing tip 4' of the movable contact into the arc chute passages so as to impinge directly on the exposed edges of the fibre barriers 9. As the hot blast flowing from the region of the arc is directed into the diverging chute passages, it soon encounters cooling structure defined by spaced copper plates 12 extending across the path of gas flow as illustrated by Fig. 2. This cooling structure, while effectively reducing the temperature and reducing the volume of the highly heated blast gases so as to minimize back pressure, may not, however, prevent flame emission beyond the barriers 9 in the case of heavy current interruptions.

The air blast circuit breaker so far described in connection with Figs. 1 and 2 is disclosed and claimed in an application Serial No. 303,126, filed November 6, 1939, by D. C. Prince et al. for "Circuit breaking apparatus and method of operating the same," and assigned to the same assignee as the present invention. Although Fig. 1 and Fig. 2 of the present application are shown in the aforesaid Prince et al. application, no claims involving the gas exhaust conduit connected to the arc chute are made in that application, such claims being made in the present application, the invention of which is an improvement on the invention of said Prince et al. application.

It is known that insulating arc extinguishing structure composed of organic material such as hard fibre vaporizes when subjected to the intense heat of arcing. I have found that the resulting gases which include hydrogen, hydrocarbon gases and carbon monoxide are responsible to a great extent for the flame above described, particularly when these gases are vented to atmosphere in a highly heated state. The oxygen in the atmosphere at once unites with the highly heated combustible gases to cause burning thereof so that considerable flame may exist exteriorly of the breaker itself. I have also found that an oxygen containing blast, such as air blast, can be utilized in combination with circuit breaker structure so as to cause substantially complete combustion of these gases prior to their venting to atmosphere.

For the purpose of causing more complete burning of combustible gases and eliminating flame emission from the breaker, an insulating conduit 13 is connected to the casing 5 so as to be in direct communication with the exhaust ends of the diverging chute passages. That end of the conduit nearest the point of initial formation of the arc, i. e. the end receiving the blast from the first diverging passage 14, is closed by an insulating wall 15. The opposite end of the conduit indicated at 16 exhausts to atmosphere. The conduit 13, which can conveniently comprise a cylindrical tube of insulation is suitably attached to the chute walls as indicated at 6'' and is cut away at 13' to receive the blast gases from the arc chamber. It is somewhat longer than indicated by Fig. 1 for the purpose of providing more combustion space and allowing more complete combustion of the gases before they are finally vented to atmosphere.

In practice, this type of air blast circuit breaker is generally effective to interrupt arcing after the movable contact has uncovered but one or two of the chute passages. Accordingly, the hot blast is mainly directed through the first passage 14 and the adjacent passage 17. The following passages 18 and 19 generally receive a comparatively fresh and cool air blast after arc interruption so that there may be an excess of oxygen, insofar as combustion requirements are concerned, within the conduit. In the case of long arcs, the passage 20 can be relied upon, after clearing of the slot 10', for supplying fresh air to the conduit 13.

It will therefore be observed that since the arc may be considered interrupted generally by the time the movable contact reaches the second barrier 9, the most highly heated arc gases containing vaporized fibre driven by the air blast into the chute are confined to the first one or two chute passages. Therefore, the last passage at least, i. e. the passage defined by the barrier or partition 10 and the adjacent partition 9, is available to direct comparatively fresh and cool blast air into the chute. Since the hot arc gases directed into the exhaust conduit 13 near its closed end must mix with this comparatively cool fresh air before leaving the conduit combustion chamber, it will be apparent that the exhaust gases are not only appreciably cooled before final venting but are also burned in the presence of an excess of oxygen in the combustion space defined by the conduit 13. Flame emission from the conduit in the case of heavy duty operation is thereby either eliminated or greatly minimized.

Although involving a somewhat more complicated arrangement, it will be apparent that an oxygen-containing gas or fresh air supply independent of the main blast supply conduit 8 may, if desired, be introduced by way of the passage 20 at any time prior to or during the interrupting operation.

In another form of my invention, the combustion space is increased for the purpose of handling exceptionally large amounts of flame incident to heavy overload and short circuit interruptions. In addition, the highly heated arc gases are so diverted as to insure complete mixing with the comparatively cool and fresh air blast which is also directed into the combustion chamber. A circuit breaker employing this principle is shown by Fig. 3, certain specific features and constructional details of which are claimed in an application Serial No. 310,603, filed December 22, 1939 by L. J. Linde for "Air blast circuit breaker."

Referring now to Fig. 3, the circuit breaker comprises a fixed contact structure 30 including a plurality of spring pressed fingers, and a coacting movable contact 31 which is operated by any suitable mechanism (not shown) generally in the manner of Fig. 1 through an oscillatable insulating arm 32 connected thereto by a crosshead 33. The fixed contact 30 is connected to one terminal conductor 34 and the movable contact 31 is connected to the other terminal conductor 35 by sliding engagement at 36.

The relatively movable contacts 30 and 31 are arranged to separate as in the case of Fig. 1 within an arc confining structure 37 of insulating

material. A conduit 38 opening into the interior of the arc confining chamber at one side of the relatively movable contacts is arranged to supply a blast of arc extinguishing gas, such as air, to the arc confining chamber when the contacts are separated. On the opposite side of the relatively movable contacts a plurality of barriers 39 preferably composed of hard fibre are arranged in the arc chute to define a plurality of divergent passages into which sections of the arc are driven during the interrupting operation of the breaker. The arc confining chamber 37, as illustrated by Figs. 1 and 2, is preferably shaped to fit rather closely over the opposite sides of the movable contact so that the passages formed by the barriers 39 are substantially shut off from the gas blast from conduit 38 when the contacts are closed and are progressively opened during separating movement of the contacts.

With this construction, the passages formed by the barriers 39 open at one end at longitudinally spaced points along the path of contact separation, i. e. the region of arcing, and each is adapted to receive the gases from the corresponding section of the arc path. Each of the passages formed by the barriers and the lateral walls of the arc confining chamber is provided with a plurality of spaced cooling plates 40 of good heat conducting material, such as copper.

Since, as previously stated, in this type breaker the arc is usually interrupted at an early point in the separating movement of the relatively movable contacts, the hottest gases emerging from the arc chamber come from the passages of the arc chute opening adjacent to the fixed contact 30. As previously pointed out, these gases often contain a considerable percentage of unburned combustible gas. This latter condition exists, particularly, in circuit breakers where the barriers 39 and the arc confining chamber 37 are formed of organic material, such as urea resin or hard fibre, which has a tendency to evaporate under the action of the arc.

In this arrangement, the gases from the arc chamber are confined until they are completely burned and sufficiently cooled before they are exhausted to the atmosphere. The construction is also designed to utilize to best advantage the available space in an air blast breaker unit which is of such a size and shape that it may be interchanged with oil breaker units of the same rating as are now in service. As illustrated in the drawing, the gases from the arc confining chamber 37 pass through the passages formed by the barriers 39 and through an opening in the side of an elongated insulating housing 41 which extends in a direction generally perpendicular to the barriers 39. The housing 41, which is generally rectangular in cross-section, is closed at one end and at the other end opens into an exhaust tube 42. In the construction illustrated by way of example, the tube extends upwardly so that the hot gases are exhausted in that direction.

The interior of the housing is divided into upper passages 43 and 44 and a lower passage 45 by a longitudinally extending partition member 46 and an extended barrier 39 of the arc chute. The partition member 46 terminates a considerable distance from each end of the housing so that the passages 43 and 45 are in communication adjacent to the closed end of the housing and the passages 44 and 45 merge near the open end of the housing 41 to form an enlarged free space 47 in which the gases from passages 44 and 45 may mix and burn. In the drawings the arc confining chamber 37 and the housing 41 are illustrated as integrally formed. It is to be understood, however, that the entire insulating structure may be fabricated from suitable sheet insulating material.

In order to provide for rapid cooling of the gases within the housing 41 a plurality of stacks of cooling plates 48, 49 and 50 are provided in the passages 43, 44 and 45 respectively. The metal plates are suitably spaced so as to permit free passage of gas through the passages.

The advantages of the above described construction will be better understood after a description of the circuit interrupting operation of the breaker. As the relatively movable contacts are separated an arc is drawn therebetween. In timed relation with the separation of the contacts a blast of air, or other arc extinguishing gas, is supplied to the arc chamber through the conduit 38. The blast may be controlled by any suitable means (not shown) such as a blast valve operated by the contact operating mechanism. The arc is blown against the edge of the fibre barriers 39 and into the diverging passages formed thereby where it is extinguished and the circuit interrupted. In this interrupting process the arc is first elongated as it bends over the edges of the barriers 39 until it finally divides into serially related sections which are separated by the barriers. After interruption of the arc, however, the gases, and particularly those from the vicinity of the fixed contact 30, are highly heated and incandescent and generally contain a considerable percentage of unburned gases. As previously pointed out, this is particularly true where the barriers 39 are formed of hard fibre or other organic insulating material having the property of evaporating sufficiently under the action of the arc to prevent the ends of the barriers from becoming conductive during the circuit interrupting operation.

In the present design, the gases from the vicinity of the fixed contact 30 are directed toward the closed end of the housing 41 and then returned to the open end of the housing through two stacks of cooling plates 48 and 50. On the other hand, the gases from the opposite side of the arcing chamber are directed into the chamber 47 at the open end of the housing 41 by way of the short passage 44. At this point, the two currents of gas are mixed in a combustion chamber of suitable size before they are vented through the tube 42 in a cooled and harmless state.

The gases from the upper passage 44 contain a very small percentage of combustible gas and in the case of air blast comprise mostly fresh air so that an excess of oxygen exists in the chamber 47. This mixture of the gases from the upper and lower passages within the chamber 47 before they are exhausted to atmosphere provides for the complete combustion of any unburned gases from the lower passage 45. Thus it is seen that the hottest gases and those containing combustible gases in quantity are led through a circuitous path to a combustion space, while the comparatively cool and less combustible gases from that portion of the path of contact travel remote from the fixed contact are led directly to the combustion space where the gases may mix and burn. This division of gases from the arc chamber makes it possible to exhaust to atmosphere gases which are not detrimental to the surrounding equipment or dangerous to person-

nel. In addition the amount of space for so handling the gases is not excessive.

It has been found with this construction that under the severest operating conditions no flame or excessively hot gases are emitted from the upper end of the exhaust tube 42. The construction also takes advantage of all the available space in a circuit breaker unit of the size and shape required for substitution in the metal clad units which have previously found widespread application in oil circuit breaker installations.

In the form of my invention shown by Figs. 4 to 7 inclusive, the hot blast gases directed into the combustion chamber are mixed with fresh air that is drawn into the chamber directly from the atmosphere. In other words, the fresh air supply for insuring combustion of carbon monoxide, et cetera, is independent of the blast source although the blast action is utilized for the purpose of introducing it into the combustion chamber. Specifically, this can be accomplished by directing the gas blast past openings in the chute structure connecting with atmosphere so that by inductive action fresh air is drawn directly into the chute or combustion chamber for mixing with the hot blast gases. With this arrangement, the fresh air supply can be admitted well beyond the point of arcing so that a supply of cool, oxygen-containing gas is always provided regardless of the possibility of unusually prolonged arcing.

Referring more particularly to the drawings, Fig. 4 shows an arc chute construction generally similar to Fig. 1 and the same reference numerals are used to indicate similar parts. In the case of the cooling plates 12, however, an altogether different arrangement is employed involving so-called "inductor grids" 60. These grids each comprise, in a convenient construction, a sheet of good heat conducting metal, such as copper, folded in V form as more clearly shown by Fig. 5 so that the apex of the V faces the gas blast. The grids 60 are located in the blast passages between the insulating partitions 9 generally in the manner of Fig. 1 except that the leading edges extend transversely of, instead of parallel to, the arc path. The grids are spaced to form passages 61 for directing the blast gases into the combustion space defined by the exhaust tube 13.

For the purpose of introducing a fresh air supply directly from atmosphere to the chute by means of the inductive action of the blast, the insulating side walls of the chute structure 5 are provided with openings directly connecting the space within the fold of each V shaped grid to atmosphere. This is best illustrated by Figs. 6 and 7, Fig. 6 being a sectional view taken along the line 6—6 of Fig. 5. As shown by Fig. 6 the insulating side walls of the chute structure 5 are cut away at 62 at both side edges of the grids 60. The blast spaces 61 between the grids are closed at the openings 62 by strips 63 of suitable material as best shown by Fig. 7 so that the gas blast itself cannot prematurely escape to atmosphere but must flow directly into the combustion space at 13. However, the space 64 defined within the fold of each grid 60 is directly connected to atmosphere at both sides of the chute so that the gas blast, by its inductive action as it flows past each grid 60, draws in fresh air from both sides of the chute as indicated by the flow direction arrows of Fig. 7. In other words, the grid arrangement functions somewhat as aspirating apparatus for the purpose of drawing fresh air into the chute.

It will therefore be seen that an independent supply of oxygen-containing gas is introduced by and in accordance with the operation of the gas blast into the combustion chamber well beyond the point of arcing. By reason of the number of fresh air openings, it will also be seen that the fresh air supply is thoroughly and uniformly mixed with the hot blast gases practically immediately upon entry to the combustion space. It should furthermore be noted that a fresh air supply may be provided as above described either in combination with the arrangements previously disclosed or so as to constitute substantially the sole oxygen-containing gas supply.

The spaced grid member construction which I have described and shown in Figs. 4 to 7 for introducing fresh air from atmosphere into the combustion space and which is involved in one of the claims of the present application is an improvement on the invention disclosed in the copending application of D. C. Prince, for "Gas blast circuit breaker," Serial No. 395,579, filed May 28, 1941, and assigned to the same assignee as the present application. The Prince application contains claims covering this construction generically while I have limited my claim so as not to read on the disclosure of said Prince application since Prince is the prior inventor of such generic invention.

It should be understood that my invention is not limited to specific details of construction and arrangement thereof herein illustrated, and that changes and modifications may occur to one skilled in the art without departing from the spirit of my invention.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. A gas blast circuit breaker comprising relatively movable contacts, means for directing a gas blast through the arc gap formed upon separation of said contacts, insulating arc extinguishing structure including organic vaporizable material into which said gas blast is directed for extinguishing said arc, said structure also defining a combustion space, and means for guiding hot combustible blast gases flowing from the region of said arc so as to mix with a supply of comparatively cool gas after arc interruption within said combustion space prior to venting of the exhaust gases to atmosphere.

2. An air blast circuit breaker comprising relatively movable contacts, means for directing an air blast through the arc gap formed upon separation of said contacts, organic insulating material defining arc extinguishing structure into which said air blast is directed for extinguishing said arc, a combustion space in communication with said arc extinguishing structure, and means for guiding the highly heated blast gases including combustible gases flowing from said arc extinguishing structure so as to mix with a supply of comparatively fresh air within said combustion chamber prior to venting of the exhaust gases to atmosphere.

3. An air blast circuit breaker comprising relatively movable contacts, means for directing an air blast through the arc gap formed upon separation of said contacts, arc extinguishing structure composed of vaporizable material disposed closely adjacent and in confining relation to said arc gap so as to be subject to vaporization under influence of the arc heat, and means defining a

combustion space into which the blast gases from said arc gap are directed, and means for guiding said blast gases so that the highly heated gas and vaporized material flowing from the arc proper is caused to mix with a comparatively fresh air blast within said combustion space prior to final venting of said gases and vaporized fibre to atmosphere.

4. A gas blast circuit breaker comprising relatively movable contacts, means for directing a gas blast through the arc gap formed upon separation of said contacts, an insulating arc chute structure for receiving said gas blast as it traverses said arc gap and for confining the arc during the interrupting operation, said arc chute having passages arranged to be opened to said blast in succession in accordance with separation of said contacts, a combustion chamber defined by said structure in communication with said passages, and deflecting means in said structure for causing mixing of the blast gases traversing the initially opened passage with comparatively fresh gases from subsequently opened passages within said chamber.

5. A gas blast circuit breaker comprising relatively movable contacts, means for directing a gas blast transversely through the arc gap formed upon separation of said contacts and an insulating arc chute structure into which the arc is driven by said gas blast, said arc chute including barriers forming passages adjacent said arc gap arranged to be opened to said blast in succession in accordance with separation of said contacts, a combustion chamber in communication with said passages, said chamber having an exhaust vent, and deflecting means in said structure for causing flow of the most highly heated blast gases traversing the initially opened passage through a longer path to said exhaust vent than the gases through subsequently opened passages so that said heated blast gases are caused to mix with the gases from said subsequently opened passages.

6. A gas blast circuit breaker for heavy duty power circuit interruption comprising relatively movable contacts, means for directing a blast of gas transversely across the arc gap formed upon separation of said contacts, an insulating arc chute into which the arc is driven by said blast, said chute at the side of said arc gap opposite the entrance of said gas blast having a plurality of insulating partitions disposed edgewise to said arc dividing the chute into separate passage leading from serially related parts of said arc gap to the chute exhaust, and a gas exhaust chamber defining a combustion space into which all said passages lead, said chamber extending in a direction generally transversely of said partitions so as to cause mixing of the blast gases from all said passages within said combustion space.

7. An air blast circuit breaker for heavy duty power circuit interruption comprising relatively movable contacts, means for directing a blast of air transversely across the arc gap formed upon separation of said contacts, an insulating arc chute into which the arc is driven by said blast, said chute at the side of said arc gap opposite the entrance of said air blast having a plurality of insulating partitions disposed edgewise to said arc dividing the chute into separate diverging passages leading from points longitudinally spaced along said arc gap to the chute exhaust, said air blast being effective to interrupt arcing well within said chute prior to extension of the arc gap to all said passages, and a conduit defining a gas exhaust and combustion chamber into which all said passages lead, said conduit extending in a direction generally transversely of said partitions to exhaust at the end corresponding to the last formed part of the arc gap whereby hot arc gases entering said conduit from the initially formed part of the arc are caused to mix with comparatively cool fresh air directed into said chamber from the chute passage nearest the exhaust end of said conduit.

8. A gas blast circuit breaker comprising relatively movable contacts, means for supplying a gas blast to the arc gap formed upon separation of said contacts, an insulating arc chute structure including organic vaporizable material for directing said gas blast through said arc gap for interruption of the arc adjacent to said material, said structure also defining a combustion space into which the blast gases are directed, and means for directing comparatively fresh air into said combustion space to mix with highly heated combustible arc gases formed incident to the interruption of the arc within said arc chute structure prior to venting of the exhaust gases from said combustion space.

9. A gas blast circuit breaker comprising relatively movable contacts, means for directing a gas blast through the arc gap formed upon separation of said contacts, insulating arc chute structure in which said arc is interrupted by said gas blast, said chute structure defining a combustion space into which the highly heated blast gases from the arc are directed, and means for causing by and in accordance with the operation of said gas blast, introduction of comparatively fresh air into said combustion space to mix with said highly heated gases prior to the venting of gases from said combustion space.

10. A gas blast circuit breaker comprising relatively movable contacts, means for directing a gas blast through the arc gap formed upon separation of said contacts, insulating arc chute structure in which said arc is interrupted by said gas blast, said chute structure defining a combustion space into which the highly heated blast gases from the arc are directed, and a plurality of spaced grid members in said chute structure disposed in the path of said gas blast, said members forming passages connecting with atmosphere and leading in the direction of said blast into said combustion space arranged so as to cause by aspiration introduction of fresh air from atmosphere into said combustion space to mix with said highly heated blast gases prior to venting of said heated gases from said combustion space.

11. A gas blast circuit breaker for power circuit interruption comprising relatively fixed and movable contacts, means for directing a blast of gas through the arc gap formed upon separation of said contacts, an insulating arc chute into which the arc is driven by said blast, said chute at the side of said arc gap opposite the entrance of said gas blast having a plurality of partitions disposed edgewise to said arc dividing the chute into separate passages leading from serially related parts of said arc gap to the chute exhaust, said gas blast being effective to interrupt arcing within said chute prior to extension of the arc gap to all said passages, and a gas exhaust chamber into which all said passages lead, said chamber extending laterally of said passages in a direction generally transversely of said partitions

to discharge at the end farthest from said fixed contact.

12. An air blast circuit breaker for power circuit interruption comprising relatively movable contacts, means for directing a blast of air through the arc gap formed upon separation of said contacts, an insulating arc chute into which the arc is driven by said blast, said chute at the side of said arc gap opposite the entrance of said gas blast having a plurality of partitions disposed edgewise to said arc dividing the chute into separate passages leading from serially related parts of said arc gap to the chute exhaust, portions of said arc chute adjacent to said arc gap being composed of an organic vaporizable material, said air blast being effective to interrupt arcing within said chute prior to extension of the arc gap to all said passages, and a gas exhaust chamber into which all said passages lead so as to cause mixing of hot combustible blast gases and comparatively cool blast air prior to venting of the exhaust gases to atmosphere.

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